

Barriers to and Facilitators of Postpartum Follow-Up Care in Women with Recent Gestational Diabetes Mellitus: A Qualitative Study

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Abstract

Objectives: Women with a history of gestational diabetes mellitus (GDM) have an increased risk of developing type 2 diabetes (T2DM) but often do not return for follow-up care. We explored barriers to and facilitators of postpartum follow-up care in women with recent GDM.

Methods: We conducted 22 semistructured interviews, 13 in person and 9 by telephone, that were audiotaped and transcribed. Two investigators independently coded transcripts. We identified categories of themes and subthemes. Atlas.ti qualitative software (Berlin, Germany) was used to assist data analysis and management.

Results: Mean age was 31.5 years (standard deviation) [SD] 4.5), 63% were nonwhite, mean body mass index (BMI) was 25.9 kg/m² (SD 6.2), and 82% attended a postpartum visit. We identified four general themes that illustrated barriers and six that illustrated facilitators to postpartum follow-up care. Feelings of emotional stress due to adjusting to a new baby and the fear of receiving a diabetes diagnosis at the visit were identified as key barriers; child care availability and desire for a checkup were among the key facilitators to care.

Conclusions: Women with recent GDM report multiple barriers and facilitators of postpartum follow-up care. Our results will inform the development of interventions to improve care for these women to reduce subsequent diabetes risk.

Introduction

GESTATIONAL DIABETES MELLITUS (GDM), defined as glucose intolerance first identified during pregnancy, affects about 7% of all pregnancies.¹ Although GDM usually resolves after delivery, women with a history of GDM are at high risk of developing type 2 diabetes (T2DM), with 4% diagnosed at 9 months after delivery and 19% at 9 years after delivery in a large Canadian cohort.² In addition, women with a history of GDM are at high risk for cardiovascular disease (CVD) compared to women without GDM, most of which is attributable to the ultimate development of diabetes.³

Despite the elevated risk for diabetes and recommendations for close follow-up,⁴⁻⁶ the opportunities for postpartum surveillance, including diabetes screening, follow-up medical care, and intervention, frequently are missed.⁷⁻¹³ In a single-

center study, only 77% of women attended a postpartum follow-up visit, and overall, only 45% received postpartum screening for diabetes, with those who attended a postpartum visit being three times more likely to also complete screening.⁹ Those at highest risk for developing diabetes, based on antenatal glucose testing and requirement of insulin, appeared to receive the fewest services.¹² However, the reasons for poor follow-up are unclear.

Cross-sectional studies suggest that providers may not adequately inform patients of their diabetes risk, and women may fail to perceive themselves at risk for diabetes and other chronic diseases.^{14,15} To our knowledge, however, no U.S.-based studies have used qualitative methods to explore the experiences of women with recent GDM in the postpartum period to better understand barriers to and facilitators of postpartum follow-up care. Understanding women's

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pregnancy and postpartum experiences could facilitate the development of interventions to improve their quality of care in the postpartum period and their transition into primary care settings.

The objective of this study was to conduct an in-depth exploration of the experiences, perspectives, and perceived barriers to and facilitators of postpartum follow-up care in women with a recent pregnancy complicated by GDM.

Materials and Methods

Study design and sample

The study was approved by the Institutional Review Board of The Johns Hopkins University School of Medicine.

Between July 2008 and March 2009, we used consecutive sampling to recruit patients during their third trimester of pregnancy. Of 25 patients invited to participate, 2 patients refused ($n = 23$). Participants were advised that the interview would occur in person at the postpartum visit or by telephone if care was received in a different setting or the participant did not attend her visit. We continued to sample, conduct interviews, and analyze data until no new information was obtained and the themes in subsequent interviews began to repeat themselves; this is known as achieving thematic saturation. Our setting was The Johns Hopkins Bayview Medical Center's high-risk obstetric clinical practice, with resident physician providers supervised by faculty.

Inclusion criteria were a GDM diagnosis, insurance coverage during and beyond the postpartum visit, and English-speaking subjects. We required insurance coverage to ensure women had equal access to follow-up medical care. In our clinical setting, this is a frequent and known barrier to care, and we wanted to focus on other barriers and facilitators. Participants were offered a \$25 gift card as compensation at the completion of the interview.

Data collection

We collected baseline sociodemographic information using a self-administered questionnaire at the time of the postpartum visit and abstracted information from the medical record about pregnancy and delivery.

One investigator (W.L.B.) conducted the interviews. We used a semistructured interview guide that included open-ended questions to build rapport and learn about the patient's general well-being, pregnancy, and postpartum experiences. If she attended her postpartum follow-up visit, questions focused on the reasons she was able to attend and what either helped or made it difficult to attend the visit. If she did not attend the visit, the interviewer asked questions about the reasons she missed the visit. The interviewer used reflective probes to encourage respondents to clarify and expand on their statements. The interview guide was modified over the course of the study, using an iterative process informed by the content of previous interviews. For example, we incorporated more questions about mood and anxiety after several participants spontaneously discussed these concerns.

In our clinical setting, patients with GDM schedule their follow-up visits at about 6–8 weeks after delivery. At the visit, patients received an order for a 2-hour oral glucose tolerance screening test (OGTT) for T2DM, which was performed on the same day if fasting or on another day if not fasting. We de-

fined missed visits as not attending any obstetric visit within 12 weeks postpartum and verified a missed visit using the medical record.

Data analysis

All interviews were audiotaped and transcribed verbatim. Using an editing analysis style,¹⁶ two investigators (W.L.B. and C.S.E.) independently read all transcripts, identifying meaningful segments within the responses. The first three interviews were used to develop a coding template. Discrepancies were negotiated with a third person arbiter (J.A.C.). The remaining interviews were coded independently by the two investigators applying the coding template, which was modified as the analysis proceeded. General themes and subthemes summarizing barriers to and facilitators of care were discussed among the entire team of investigators, and we collectively selected the representative quotes presented in this article. Atlas.ti 5.2 software (Atlas.ti GmbH, Berlin, Germany) was used to facilitate data management and analysis. Participants' characteristics from the baseline survey and medical record abstraction were analyzed using Stata Version 9.2 (Stata Corporation, College Station, TX).

Results

Participant characteristics

Twenty-three patients in their third trimester of pregnancy agreed to participate in the study. One participant declined to be interviewed at the time of her postpartum visit, resulting in 22 completed interviews, which was a sufficient sample size to achieve theme saturation.

TABLE 1. DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF 22 PARTICIPANTS

Characteristic	n (%)
Age, mean (SD)	31.5 (4.5)
Race	
African American	7 (32)
Asian/Pacific Islander/Hawaiian	6 (27)
American Indian	1 (5)
Caucasian	8 (36)
Primiparous	10 (45)
Educational level ≤ 12 years	5 (23)
Married or living with partner	16 (73)
Annual income $< \$50,000$	11 (50)
Prepregnancy body mass index (kg/m^2)	
Mean (SD)	25.9 (6.2)
Body mass index $> 30 \text{ kg}/\text{m}^2$	6 (27)
Prior history of GDM	6 (27)
Gestational weight gain (lbs), median (IQR)	23 (11)
Has primary care doctor	16 (73)
GDM treated with insulin or oral medication	11 (50)
Cesarean delivery	11 (50)
Baby required NICU care	3 (14)
Breastfeeding at 6 weeks postpartum	12 (55)
Did not attend postpartum visit	4 (18)
Did not undergo postpartum diabetes screening test	16 (73)

GDM, gestational diabetes mellitus; IQR, interquartile range; NICU, neonatal intensive care unit; SD, standard deviation.

Table 1 shows the demographic and pregnancy characteristics of the 22 participants, which were similar to those of the overall patient population in the high-risk obstetric practice. The mean age was 31.5 years, and there were 7 African American, 6 Asian/Pacific Islander or Hawaiian, and 8 Caucasian women. Most participants were married or living with a partner (73%), had greater than a high school education (77%), and had a family income >\$50,000 per year (50%). Twenty-seven percent had prepregnancy obesity, defined as a body mass index (BMI) > 30 kg/m², 27% had a prior history of GDM, and 50% underwent a cesarean delivery. Fifty-five percent were breastfeeding at the time of their postpartum visit, and only 1 was exclusively breastfeeding. The majority (82%) of participants returned for postpartum follow-up care. Only 6 (27%) completed a 2-hour OGTT for postpartum screening for diabetes, which is the test ordered in our clinical setting. The 4 patients who did not attend their follow-up visit also did not receive the diabetes screening test.

Results of qualitative analysis from 22 one-on-one interviews

We completed 13 in-person and 9 phone interviews at or around the time of the postpartum visit. Reasons for the phone interviews included the participant missing her visit ($n=4$), the interviewer missing the patient's visit ($n=4$), or the participant attending her visit at a community clinical site ($n=1$). We organized patients' reflections about pregnancy and the postpartum period into themes and subthemes to understand barriers to and facilitators of postpartum follow-up care.

Themes addressing barriers to postpartum follow-up care

Table 2 shows the four general themes and the illustrative quotations from subthemes that addressed barriers to postpartum follow-up care.

1. Recent delivery experience and baby's health issues as a barrier to postpartum follow-up care. Patients often retold the stories of their recent deliveries. Their experiences during the delivery and hospital stay and the health of the baby sometimes influenced their ability and willingness to return for follow-up medical care.

One participant never made her follow-up appointment because her baby was still in the neonatal intensive care unit (NICU), and she was focused on the baby's recovery.

I guess [I didn't come] because [I was] seeing the baby every day... It's the only thing I did, see the baby at the hospital [NICU] and spend time there every day.—36-year-old, did not attend visit

2. Personal and family adjustment to the new baby as a barrier to postpartum follow-up care. Participants discussed the multiple levels of personal and family adjustment to having a new baby, which included emotional stress with her new or expanded role, the demands of the baby's unpredictable schedule, which often led to less time for self-care, and overall concerns about child care and return to work. Several participants described this adjustment as interfering with their ability to return for follow-up care.

A single mother with three children described her complex schedule and why she was an hour and a half late to her follow-up visit.

Well, I had overslept that's why [I was late]. [C]ause last night I had to stay up and do my homework... I didn't get in the house until like 11 o'clock... and then, you know, I normally have a 3 o'clock feeding... and a 5:30 feeding... I was supposed to get up, but I happened to doze off and fell asleep... I didn't get up until like 10 minutes after 8, and I was like "oh shoot I'm late." [I]t's just that I've been running around trying to get stuff done before I go back to work.—37-year-old, late for visit

A 30-year-old participant said she missed her follow-up visit because she had a cold. However, during an extensive phone interview, her isolation and depressed mood became apparent as key barriers to her attending her visit.

Obviously things are harder [after the baby]. I'm just tired... because I'm burnt out, frustrated, you know? [I]t's tiring to figure out where... all the resources are, and try to get to a more stable, better situation.—30-year-old, did not attend visit

3. Concerns about postpartum and future health as a barrier to postpartum follow-up care. At the time of their postpartum visits, all 22 participants discussed either their concern or lack of concern about their health, especially as it related to the diagnosis of GDM, and how it influenced their return for care. Two participants did not attend their postpartum visits, in part because they perceived they were healthy, and the visit was low priority compared to other commitments. One example is a 27-year-old woman with four other children at home who checked her fingerstick blood sugars after delivery, and because they were between 100 and 120 mg/dL, she decided not to return for care.

I checked my [blood sugars] with my regular machine at home. Every day it's good...—120, 111, 100. Some doctor said... they can diagnose diabetes after delivery, so I checked [and] everything is normal.—27-year-old, did not attend visit

Conversely, 4 participants expressed their fears about receiving a diagnosis of T2DM, which presented a barrier to returning for care and undergoing postpartum diabetes screening. A woman who was diagnosed with both hypertension and GDM during her pregnancy, stated:

I refused to check my blood pressure, and... to check or prick my finger, intentionally, when I know I could have done it... I was nervous. Just the whole unknowing, 'cause once you know, then it's like, "Okay, now what do you do?"—33-year-old, attended visit

When asked in the interview whether there were any other challenges to her return for her, 1 woman reflected:

I guess one thing... is fear. People coming back at 6 weeks, they know they have to do that blood sugar checkup, and and they probably fear that... they're gonna have to continue doing blood sugars, and, continue with their diets like they were during the pregnancy.—28-year-old, attended visit

Another participant, who was concerned about receiving her results but did decide to return for care, said:

[P]eople probably [are] more worried about going back because in the hospital they tell you that, 'Oh, yeah. It looks like

TABLE 2. THEMES AND SUBTHEMES THAT ADDRESSED BARRIERS TO AND FACILITATORS OF POSTPARTUM FOLLOW-UP CARE FOR WOMEN WITH RECENT GESTATIONAL DIABETES MELLITUS

<i>General themes and subthemes focusing on barriers and facilitators</i>	<i>n</i>	<i>Illustrative quotations</i>
Barriers to care		
Delivery and baby's health	14	
Baby's health needs	6	I guess [I didn't come] cause [I was] seeing the baby every day... It's the only thing I did, see the baby at the hospital [NICU] and spend time there every day.—36-year-old, did not attend visit
Personal and family adjustment to baby	18	
Emotional stress/feeling overwhelmed	6	Obviously things are harder [after the baby]. I'm just tired... because I'm burnt out, frustrated, you know? [I]t's tiring to figure out where... all the resources are, and try to get to a more stable, better situation.—30-year-old, did not attend visit
Demands of baby's schedule/lack of time for self-care	16	[T]rying to get showers in and get food in is an issue right now. [I]f those factors hadn't been met I probably would have called and said, "I need to reschedule.—37-year-old, attended visit
Child care needs	7	[I]f my husband wasn't able to take off work, then I would probably have to delay [the appointment] until he could. [T]here's no way I would've come in here by myself.—33-year-old, attended visit
Concerns about postpartum and future health	22	
Perception of good health and not needing further care	3	I checked my [blood sugars] with my regular machine at home. Every day it was good. After pregnancy, one week [later] I checked [and] everything is good.—27-year-old, did not attend visit
Fear of receiving bad news at follow-up appointment	4	I was nervous [to come]. Just the whole unknowing, 'cause once you know, then it's, Okay, now what do you do?—33-year-old, attended visit
Experiences with medical care and services		
Dissatisfaction with care	4	I have my theories about why people aren't coming for their follow up appointments. Whenever I would come here, there would be a different doctor that I would see... I think the continuity of care is very poor here.—36-year-old, attended visit
Logistics of accessing care	8	[I] have to come back again, because I had breakfast... I didn't know I had to have to be fasting when they do the tests.—32-year-old, attended visit
Facilitators of care		
Availability of child care	8	My husband took his morning off. I was expecting a pelvic exam and everything. You can't have a baby there—he might cry [or] need something.—28-year-old, attended visit
Checkup and clearance for return to work	6	... I just wanted to make sure everything was okay with my body, and get my paperwork on health.—36-year-old, attended visit
Connection with clinical and office staff	3	I was happy to see everybody [today] since the whole delivery process was so traumatic. It was nice to come [for my postpartum visit] where everybody... could say, "You know what? She pulled through."—33-year-old, attended visit
Appointment timed before return to work	2	I [was able to come [because] I'm not working yet. I'm able to come over because of the availability.—33-year-old, attended visit
Address specific concerns or questions	10	For me, [I came] 'cause I had a tear, so I just wanted to make sure I was healing up well, and everything was fine, that I could just continue life as it is, and... 'cause they do the check-up for the blood sugar again, for the diabetes. And that's on my mind, too.—28-year-old, attended visit
Discuss family planning	3	When I went to my [visit], she said, "Because you had the C-section you cannot have another baby at least for the year, if you are planning." So that was good... to know.—39-year-old, attended visit

C-section, cesarean section; NICU, neonatal intensive care unit.

it's gone.' [P]eople would be more afraid to go back and get the follow-up, in case they still have it. I know it's a small chance, but I know it was one of my concerns, but at the same time, I don't wanna have diabetes. But if I did have it, I need to be around a long time for my kids, so it's like I would make sure I

monitored it and did what needed to be done.—34-year-old, attended visit

4. Experiences with medical care and services as barrier to postpartum follow-up care. Several participants identi-

fied the logistics of the busy clinic, often with long waits, and receiving care from multiple providers, as influencing their ability to obtain postpartum follow-up care and screening for diabetes.

[T]hey didn't do the test. I have to come back again, because I had breakfast and I didn't know I had to be fasting when they do the test, so I have to come back again for the blood work.—
32-year-old, attended visit

The majority of participants expressed satisfaction with the obstetric care they had received. However, 2 patients highlighted their frustrations with the lack of continuity of care and with multiple resident providers, which were reasons why they did not want to return for care. In response to the question about whether there was anything that kept her from coming to her visit 1 participant said:

Yeah... All the different people I meet. It's just because you don't get that one [doctor] you know? You see all different [doctors] and then they didn't have my record and... everybody just seems so confused here, like they don't know what's going on with their patient.—27-year-old, attended visit

Themes addressing facilitators of postpartum follow-up care

Participants also identified several key facilitators that enabled them to attend the postpartum follow-up visit. Table 2 shows the six facilitator themes and illustrative quotations. Four of the themes are described in detail.

1. Availability of child care at time of visit as a facilitator of postpartum follow-up care. Few participants brought their newborn babies with them to the postpartum visit, and child care at home was often prearranged. One participant stated that she found it easier to leave her baby at home for her visit because she is not nursing him. The availability of child care that was safe and familiar, like a close family member or the father of the baby, was the most common arrangement.

My father is watching her right now. He is retired so he was either going to be coming to the appointment and watching her while I was here, or because the weather was rather inclement, he's staying at the apartment and watching her for me until I get back.—37-year-old, attended visit

2. Desire to have checkup and clearance for return to work as a facilitator of postpartum follow-up care. Many participants considered the postpartum visit their closure with their care and providers in the high-risk obstetric practice. It was an opportunity for a final checkup, to make sure an incision from a cesarean section or episiotomy had healed, and that they were cleared to resume all prepregnancy activities, including return to work.

I find that the follow-up is probably very important considering that... I had an episiotomy, I had stitches, and wanting to make sure everything was healed up. [A]nd that... there weren't any complications.—37-year-old, attended visit

... I just wanted to make sure everything was okay with my body, and get my paperwork on health and stuff.—36-year-old, attended visit

Several participants were motivated to return for care because of concerns about GDM and the need for follow-up glucose testing.

Since I... had gestational diabetes in my pregnancy, I had to have the test to make sure that I'm okay [and] I don't have it [diabetes]... I know it's really important to have this visit, especially after you have the baby and the C-section and all that, you have to come in and make sure everything's fine.—
32-year-old, attended visit

3. Connection with clinical and office staff as a facilitator of postpartum follow-up care. Three participants described the relationships they had developed with the clinical care team and office staff as facilitating their return for care. In particular, 1 patient initially missed her follow-up visit. When she called to reschedule it, the clerk recognized her.

Yeah [I came and brought the baby], because when I called to reschedule she's like, "Oh, I was hoping you'd bring the baby so I could see him." So I told her I'd bring him.—23-year-old, attended rescheduled visit after missing first one

4. Discussion of family planning as a facilitator of follow-up care. Participants were often motivated to attend their postpartum follow-up visits to discuss birth control options and start on a method. One participant appreciated the dialogue she had with her obstetrician about timing of her next pregnancy.

When I went to my [visit], she said, "Because you had the C-section, you cannot have another baby at least for the year, if you are planning." So, that was good that I came to know even [though] I am not planning, but still it was good.—39-year-old, attended visit

Discussion

Despite their elevated risk for developing future T2DM, women with a recent history of GDM described multiple types of barriers to follow-up medical care and monitoring. We categorized these barriers into four major themes, which are described as distinct but clearly have some overlap: Delivery and baby's health; Personal and family adjustment to the baby; Concerns about postpartum and future health; and Experiences with medical care and services. We also identified six key facilitator themes that motivated women to return for care. Our findings provide an important, yet previously understudied window into the lives of women with GDM in the postpartum period to better understand their experiences and to identify specific reasons why they do or do not follow recommendations to return for postpartum follow-up care.

Prior studies have evaluated patient-level barriers to and facilitators of follow-up care in the postpartum period for women with a history of GDM. Our study findings were consistent with survey-based studies showing that some women with recent GDM do not perceive themselves to be at high risk for diabetes.^{15,17} Some of the participants described perceived good health as a reason for not returning for follow-up care. Patients who had specific questions or concerns, especially about GDM and diabetes risk, were likely to return for care. It is not clear if these concerns stemmed from prior conversations with their providers. A cross-sectional survey of 228 women with a history of GDM enrolled in a university-affiliated managed care program showed the receipt of advice from providers about postpartum diabetes screening increased women's completion of follow-up glucose testing.¹⁴

Notably, we elucidated two clinically important barriers to follow-up care that will be important to address in future interventions. First, some women reported postpartum stressors and mood symptoms, such as anxiety and feeling overwhelmed, as barriers to follow-up care. Perinatal depression affects between 6% and 13% of women within 3 months after delivery,¹⁸ and there is an association between GDM and depression.¹⁹ Future interventions that focus on postpartum follow-up care in women with GDM will need strategies to improve the recognition and management of postpartum mood symptoms. The second clinically important and also unexpected finding from our study was participants' fear of receiving bad news, particularly a diagnosis of diabetes, at their follow-up visit. Women perceived their risk for developing diabetes as an immediate instead of a long-term risk. They often preferred the state of "unknowing," as 1 participant described it, to continuing with the significant behavioral changes, such as frequent blood glucose monitoring and dietary restrictions, during the all-too-recent GDM-complicated pregnancy. Anticipating and addressing this concern through improved patient-provider communication may alleviate some of their fears and improve adherence to follow-up recommendations.

Several limitations of this qualitative study should be considered. First, like other qualitative studies, our goal was to obtain an in-depth perspective in a smaller sample. Even within our local clinical population, however, we excluded women without health insurance beyond the postpartum visit, limiting our ability to comment on barriers to care for these disadvantaged patients. Therefore, results from this study likely represent a best-case scenario. In addition, we selected our sample from an academic high-risk obstetric practice setting, with obstetric resident physicians as providers. Because women were often referred to this practice for GDM management from both community and academic practices, we believe that our sample contains patients with a diversity of experiences and perspectives. However, concerns about the practice's logistics, wait time, and ratings of satisfaction may be unique to the teaching-hospital setting. Nonetheless, our results may be particularly useful for other providers in teaching hospitals who are interested in developing interventions to improve aspects of care. Second, the focus of this study was on postpartum follow-up care in the clinic, which in our setting is the first step toward receiving an order for a screening test for T2DM. Because patients were interviewed at or around the time of their postpartum visit, many commented about postpartum diabetes screening. However, it was not the goal of this study to report screening rates, as our clinical tracking system may have missed some results, such as if patients received orders from outside providers or laboratory results were not received or entered into the medical record. We believe that the barriers and facilitators we presented from this study may apply to receiving all aspects of postpartum care, inclusive of laboratory testing.

We plan to use these results to inform the development of interventions to improve postpartum follow-up care. To our knowledge, only one trial has focused on the outcome of return rates for postpartum care or testing. Clark et al.²⁰ used a 2×2 factorial design to randomly assign patients with GDM to receive a postal reminder about postpartum diabetes screening, a reminder sent to their physicians, reminders to both physician and patient, or neither. Mailing postal reminders to the patient,

physician, or to both resulted in a 3–4-fold increase in postpartum glucose screening rates.²⁰ Informed by our findings about barriers to care, other interventions focused on improving attendance at postpartum clinical care or diabetes screening may include the following components: Enhancement of patient-provider communication about the risk of developing T2DM and anticipatory guidance on preventive health behaviors, in particular breastfeeding²¹ and diet and exercise²²; Recognition and treatment of mood symptoms; Practice-level changes to improve logistics, in particular for undergoing postpartum diabetes screening, for women facing the demands of a baby's unpredictable schedule.

Our qualitative findings about barriers to and facilitators of postpartum follow-up care provide important groundwork to developing comprehensive interventions that have the potential to decrease the risk of T2DM and CVD in women with recent GDM.

Acknowledgments

We thank Kirsten Costello for her assistance with data entry and management at the beginning of the study. This work was sponsored by The Johns Hopkins University–University of Maryland Diabetes Research and Training Center, P60 DK079637, the career development award, KL2RR025006-02, and training grant, T32 HL007180-32.

Disclosure Statement

The authors have no conflicts of interest to report.

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